

The present invention relates to the identification in vertebrate animals, including humans, of an ion channel which is involved in osmoregulation and mechanoreception. This ion channel, named VR-OAC, functions as a cation channel which is activated by osmotic and mechanical stimulation. In particular, the present invention relates to the broad applications of VR-OAC that capitalize on its newly discovered properties and activities, including both diagnostic and therapeutic methodologies. The invention further relates to methods for using the receptor therapeutically, such as polypeptide or gene therapy, diagnostically, and to methods and assays for identification and screening of VR-OAC analogs, agonists or antagonists and uses thereof.

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